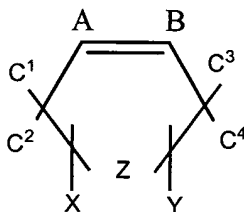


WHAT IS CLAIMED IS:

1. A film comprising at least one layer, the layer comprising an oxygen scavenger composition comprising a condensation polymer and a transition metal salt, compound or complex, wherein said polymer comprises mer units derived from

(A) at least one or a mixture of substituted alicyclic compounds having non-aromatic, ethylenic functionality according to the following representation:



wherein

A, B, C¹, C², C³, C⁴ each independently represents hydrogen or a C_qH_{2q+1} hydrocarbyl group with q being an integer of from 0 to 20, provided that either A or B and at least one of C¹, C², C³, C⁴ are hydrogen atoms and each carbon atom of the alicyclic ring is fully substituted by hydrogen, hydrocarbyl, X and/or Y group(s) or mixtures thereof to fill its valence state;

X and Y each independently represents -(CH₂)_n-C(=O)-D with n being an integer in the range from 0 to 20 and D being selected from a halide atom or an OR group wherein R is hydrogen atom or a C₁-C₁₂ alkyl group, or X and Y together represent -(CH₂)_n-C(=O)_x-D with x being 2, n being an integer in the range from 0 to 20 and D is oxygen atom; and

Z representing a -(C_tH_{2t-2})- hydrocarbylene group with t being an integer in the range from 1-4;

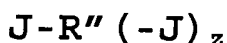
(B) at least one or a mixture of difunctional hydrocarbon compounds according to the following representation:



wherein

5 R' represents a C₅ or greater hydrocarbon group selected from alkylene, cycloalkylene or arylene group, and
each G represents a hydroxyl or an amino group;

10 (C) at least one or a mixture of polyfunctional hydrocarbon compounds according to the following representation:



wherein

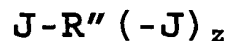
15 R'' represents a C₂-C₂₀ hydrocarbon group selected from alkylene, cycloalkylene, arylene, alkarylene or aralkylene groups or mixtures thereof;
J represents a functional group selected from -OH, -NH₂, -N=C=O and -(CH₂)_n-C(=O)-D with n being an integer in the range from 0 to 20 and D being selected from a halide atom or an OR''' group, wherein R''' is an -H, or C₁-C₁₂ alkyl group, or two J groups together represents -(CH₂)_n-C(=O)_x-D with n being an integer of from 0 to 20, D being an oxygen atom and x being 2;

20 z is an integer of from 2 to 5; and

25 (D) at least one or a mixture of monomer compounds selected from isophthalic acid, terephthalic acid, tetrahydroisophthalic acid, tetrahydroterephthalic acid, hydrogenated isophthalic acid, hydrogenated terephthalic acid, C₁-C₁₂ alkyl esters thereof, anhydride derivatives thereof, and hydrocarbyl derivatives thereof and lower C₁-C₅ glycol ester derivatives thereof.

2. The film of claim 1 wherein monomer (A) is selected from *cis*-1,2,3,6-tetrahydrophthalic anhydride; and dimethyl-1,2,3,6-tetrahydrophthalate.
- 5 3. The film of claim 1 wherein monomer (B) is selected from 1,5-pentanediol, 1,6-hexanediol, 1,7-heptanediol, 1,8-octanediol and mixtures thereof.
- 10 4. The film of claim 1 wherein the monomer (C) is selected from benzenepentacarboxylic acid, benzenhexacarboxylic acid, trimellitic anhydride, pyromellitic dianhydride, trimethylolpropane, pentaerythritol and mixtures thereof.
- 15 5. The film of claim 1 wherein monomer (D) is selected from isophthalic acid, terephthalic acid, isophthalic acid (C₁-C₃) alkyl ester, terephthalic acid (C₁-C₃) alkyl ester, bis(2-hydroxyethyl)terephthalate, bis(2-hydroxyethyl)isophthalate, hydrocarbyl substituted derivatives thereof and mixtures thereof.
- 20 6. A laminated product comprising a plurality of layers, including
- i) at least one layer, the layer comprising an oxygen scavenger composition comprising a condensation polymer and a transition metal salt, compound or complex, wherein said polymer comprises mer units derived from
- 25 (A) at least one or a mixture of substituted alicyclic compounds having non-aromatic, ethylenic functionality according to the following representation:

(C) at least one or a mixture of polyfunctional hydrocarbon compounds according to the following representation:



5 wherein

R'' represents a C₂-C₂₀ hydrocarbon group selected from alkylene, cycloalkylene, arylene, alkarylene or aralkylene groups or mixtures thereof;

10 J represents a functional group selected from -OH, -NH₂, -N=C=O and -(CH₂)_n-C(=O)-D with n being an integer in the range from 0 to 20 and D being selected from a halide atom or an OR''' group, wherein R''' is an -H, or C₁-C₁₂ alkyl group, or two J groups together represents -(CH₂)_n-C(=O)_x-D with n being an integer of from 0 to 20, D being an oxygen atom and x being 2;

15 z is an integer of from 2 to 5; and

(D) at least one or a mixture of monomer compounds selected from isophthalic acid, terephthalic acid, tetrahydroisophthalic acid, tetrahydroterephthalic acid, hydrogenated isophthalic acid, hydrogenated terephthalic acid, C₁-C₁₂ alkyl esters thereof, anhydride derivatives thereof, and hydrocarbyl derivatives thereof and lower C₁-C₅ glycol ester derivatives thereof; and

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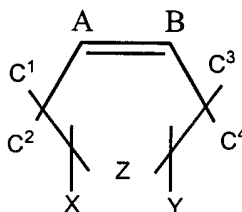
ii) at least one layer comprising a material selected from the group consisting of

- 25
- a) a polymeric article,
 - b) a paper article, and
 - c) a metal article.

7. The laminated product of claim 6 wherein monomer (A) is selected from *cis*-1,2,3,6-tetrahydrophthalic anhydride; and dimethyl-1,2,3,6-tetrahydrophthalate.
- 5 8. The laminated product of claim 6 wherein monomer (B) is selected from 1,5-pentanediol, 1,6-hexanediol, 1,7-heptanediol, 1,8-octanediol and mixtures thereof.
- 10 9. The laminated product of claim 6 wherein the monomer (C) is selected from benzenepentacarboxylic acid, benzenhexacarboxylic acid, trimellitic anhydride, pyromellitic dianhydride, trimethylolpropane, pentaerythritol and mixtures thereof.
- 15 10. The laminated product of claim 6 wherein monomer (D) is selected from isophthalic acid, terephthalic acid, isophthalic acid (C₁-C₃) alkyl ester, terephthalic acid (C₁-C₃) alkyl ester, bis(2-hydroxyethyl)terephthalate, bis(2-hydroxyethyl)isophthalate, hydrocarbyl substituted derivatives thereof and mixtures thereof.
- 20 11. The laminated product of claim 6 wherein the polymeric article comprises a bottle.
- 25 12. The laminated product of claim 6 wherein the polymeric article comprises a tray.
13. The laminated product of claim 6 wherein the paper article comprises a gable top carton.
- 30 14. The laminated product of claim 6 wherein the metal article comprises a can.

15. An oxygen scavenger composition comprising a condensation polymer and a transition metal salt, compound or complex, wherein said polymer comprises mer units derived from

- 5 (A) at least one or a mixture of substituted alicyclic compounds having non-aromatic, ethylenic functionality according to the following representation:



10

wherein

- A, B, C¹, C², C³, C⁴ each independently represents hydrogen or a C_qH_{2q+1} hydrocarbyl group with q being an integer of from 0 to 20, provided that either A or B and at least one of C¹, C², C³, C⁴ are hydrogen atoms and each carbon atom of the alicyclic ring is fully substituted by hydrogen, hydrocarbyl, X and/or Y group(s) or mixtures thereof to fill its valence state;

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- X and Y each independently represents -(CH₂)_n-C(=O)-D with n being an integer in the range from 0 to 20 and D being selected from a halide atom or an OR group wherein R is hydrogen atom or a C₁-C₁₂ alkyl group, or X and Y together represent -(CH₂)_n-C(=O)_x-D with x being 2, n being an integer in the range from 0 to 20 and D is oxygen atom; and

20

Z representing a -(C_tH_{2t-2})- hydrocarbylene group with t being an integer in the range from 1-4;

- 25 (B) at least one or a mixture of difunctional hydrocarbon compounds according to the following representation:



wherein

R' represents a C₅ or greater hydrocarbon group selected from alkylene, cycloalkylene or arylene group, and

5 each G represents a hydroxyl or an amino group;

(C) at least one or a mixture of polyfunctional hydrocarbon compounds according to the following representation:



wherein

R'' represents a C₂-C₂₀ hydrocarbon group selected from alkylene, cycloalkylene, arylene, alkarylene or aralkylene groups or mixtures thereof;

J represents a functional group selected from -OH, -NH₂, -N=C=O and -(CH₂)_n-C(=O)-D with n being an integer in the range from 0 to 20 and D being selected from a halide atom or an OR''' group, wherein R''' is an -H, or C₁-C₁₂ alkyl group, or two J groups together represents -(CH₂)_n-C(=O)_x-D with n being an integer of from 0 to 20, D being an oxygen atom and x being 2;

20 z is an integer of from 2 to 5; and

(D) at least one or a mixture of monomer compounds selected from isophthalic acid, terephthalic acid, tetrahydroisophthalic acid, tetrahydroterephthalic acid, hydrogenated isophthalic acid, hydrogenated terephthalic acid, C₁-C₁₂ alkyl esters thereof, anhydride derivatives thereof, and hydrocarbyl derivatives thereof and lower C₁-C₅ glycol ester derivatives thereof.

16. The composition of claim 15 wherein monomer (A) is selected from *cis*-1,2,3,6-tetrahydrophthalic anhydride; and dimethyl-1,2,3,6-tetrahydrophthalate.

17. The composition of claim 15 wherein monomer (B) is selected from 1,5-pentanediol, 1,6-hexanediol, 1,7-heptanediol, 1,8-octanediol and mixtures thereof.
- 5
18. The composition of claim 15 wherein the monomer (C) is selected from benzenepentacarboxylic acid, benzenehexacarboxylic acid, trimellitic anhydride, pyromellitic dianhydride, trimethylolpropane, pentaerythritol and mixtures thereof.
- 10
19. The composition of claim 15 wherein monomer (D) is selected from isophthalic acid, terephthalic acid, isophthalic acid (C₁-C₃) alkyl ester, terephthalic acid (C₁-C₃) alkyl ester, bis(2-hydroxyethyl)terephthalate, bis(2-hydroxyethyl)isophthalate, hydrocarbyl substituted derivatives thereof and mixtures thereof.
- 15
20. The composition of claim 15 wherein the transition metal is present in from 0.001 to 1 weight percent based on the total weight of the mixture.
- 20
21. The composition of claim 15 wherein the transition metal is present as a salt selected from the group consisting of cobalt neodecanoate, cobalt 2-ethylhexanoate, cobalt oleate, cobalt acetylacetonate, and cobalt 2-ethylbutyrate.
- 25
22. The composition of Claim 15 wherein the composition comprises an effective amount of a photoinitiator.
23. The composition of claim 15 wherein the oxygen scavenger composition comprises a diluent polymer selected from the group consisting of ethylene polymer and copolymer, polyester, polyvinyl chloride, polyvi-
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nylidene dichloride, polycaprolactone, polyamide, polycarbonate, polyurethane, polyether, polypropylene, polystyrene, and copolymers and mixtures thereof.

- 5 24. The composition of claim 15 wherein
- a) the condensation polymer is derived from monomer (C) in
 the amount of from 300 to 15,000 parts per million based on
 the total monomer content used,
- 10 b) the condensation polymer is derived from monomer (D) in
 the amount of from 2 to 25 molar percent of the total of
 monomers (A) and (D), and
- c) the molar ratio of carboxylic acid, acid ester, acid halide and
 isocyanate groups to hydroxyl and amine groups of mono-
 mers (A), (B), (C) and (D) is from 0.9 to 1.1.

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